Exploring Aeronautics			
2004 Mathematics			
Curriculum Standards			
Kansas Mathematics			
Grade 5			
Activity/Lesson	**State**	**Standards**	
Tools of Aeronautics(257-326)	KS	MA.5.4.1.K3	recognizes a simple event in an experiment or simulation where the probabilities of all outcomes are equal.
The Tools of Aeronautics	KS	MA.5.4.1.K2	lists all possible outcomes of a simple event in an experiment or simulation in an organized manner including the use of concrete objects.
The Tools of Aeronautics	KS	MA.5.4.1.K3	recognizes a simple event in an experiment or simulation where the probabilities of all outcomes are equal.
The Resource Center	KS	MA.5.1.1.K2.a	demonstrates number sense for integers, fractions, decimals, and money in a variety of situations; compares and orders integers,
The Resource Center	KS	MA.5.2.3.K5	plots and locates points for integers (positive and negative whole numbers) on a horizontal number line and vertical number line.
The Resource Center	KS	MA.5.2.4.K1.a	knows, explains, and uses mathematical models to represent mathematical concepts, procedures, and relationships. Mathematical models include (process models (concrete objects, pictures, diagrams, number lines, hundred charts, measurement tools, multiplication arrays, division sets, or coordinate planes/grids) to model computational procedures and mathematical relationships and to solve equations)
The Resource Center	KS	MA.5.2.4.K1.b	knows, explains, and uses mathematical models to represent mathematical concepts, procedures, and relationships. Mathematical models include (place value models (place value mats, hundred charts, base ten blocks, or unifix cubes) to compare, order, and represent numerical quantities and to model computational procedures)
The Resource Center	KS	MA.5.3.4.K1	locates and plots points on a number line (vertical/horizontal) using integers (positive and negative whole numbers).
Science of Flight	KS	MA.5.3.2.K1	determines and uses whole number approximations (estimations) for length, width, weight, volume, temperature, time, perimeter, and area using standard and nonstandard units of measure.
Integrating with Aeronautics	KS	MA.5.1.4.K1	computes with efficiency and accuracy using various computational methods including mental math, paper and pencil, concrete materials, and appropriate technology.

Integrating with Aeronautics	KS	MA.5.2.2.K4	recognizes ratio as a comparison of part-to-part and part-to-whole relationships, e.g., the relationship between the number of boys and the number of girls (part-to-part) or the relationship between the number of girls to the total number of students in the classroom (part-to-whole).
Integrating with Aeronautics	KS	MA.5.2.3.K5	plots and locates points for integers (positive and negative whole numbers) on a horizontal number line and vertical number line.
Integrating with Aeronautics	KS	MA.5.2.4.K1.a	knows, explains, and uses mathematical models to represent mathematical concepts, procedures, and relationships. Mathematical models include (process models (concrete objects, pictures, diagrams, number lines, hundred charts, measurement tools, multiplication arrays, division sets, or coordinate planes/grids) to model computational procedures and mathematical relationships and to solve equations)
Integrating with Aeronautics	KS	MA.5.2.4.K1.b	knows, explains, and uses mathematical models to represent mathematical concepts, procedures, and relationships. Mathematical models include (place value models (place value mats, hundred charts, base ten blocks, or unifix cubes) to compare, order, and represent numerical quantities and to model computational procedures)
Scientific Method(124-144)	KS	MA.5.2.4.K1.j	knows, explains, and uses mathematical models to represent mathematical concepts, procedures, and relationships. Mathematical models include (graphs using concrete objects, pictographs, frequency tables, bar graphs, line graphs, circle graphs, Venn diagrams, line plots, charts, tables, and single stem-and-leaf plots to organize and display data)
Scientific Method(124-144)	KS	MA.5.4.2.K2	collects data using different techniques (observations, polls, tallying, interviews, surveys, or random sampling) and explains the results.
Exploring Aeronautics			
2004 Mathematics			
Curriculum Standards			
Kansas Mathematics			
Grade 6			
Activity/Lesson	**State**	**Standards**	
Fundamentals of Aeronautics (145-176)	KS	MA.6.4.2.K1.a	organizes, displays, and reads quantitative (numerical) and qualitative (non-numerical) data in a clear, organized, and accurate manner including a title, labels, categories, and rational number intervals using these data displays (graphs using concrete objects)

Tools of Aeronautics(257-326)	KS	MA.6.4.1.K4	represents the probability of a simple event in an experiment or simulation using fractions and decimals, e.g., the probability of rolling an even number on a single number cube is represented by ½ or .5.
The Tools of Aeronautics	KS	MA.6.4.1.K4	represents the probability of a simple event in an experiment or simulation using fractions and decimals, e.g., the probability of rolling an even number on a single number cube is represented by ½ or .5.
The Resource Center	KS	MA.6.1.1.K2.a	demonstrates number sense for integers, fractions, decimals, and money in a variety of situations; compares and orders integers,
The Resource Center	KS	MA.6.1.1.K3	explains the relative magnitude between whole numbers, fractions greater than or equal to zero, and decimals greater than or equal to zero.
The Resource Center	KS	MA.6.2.4.K1.a	knows, explains, and uses mathematical models to represent mathematical concepts, procedures, and relationships. Mathematical models include (process models (concrete objects, pictures, diagrams, number lines, hundred charts, measurement tools, multiplication arrays, division sets, or coordinate planes/grids) to model computational procedures and mathematical relationships and to solve equations)
The Resource Center	KS	MA.6.2.4.K1.b	knows, explains, and uses mathematical models to represent mathematical concepts, procedures, and relationships. Mathematical models include (place value models (place value mats, hundred charts, base ten blocks, or unifix cubes) to compare, order, and represent numerical quantities and to model computational procedures)
Science of Flight	KS	MA.6.3.2.K1	determines and uses whole number approximations (estimations) for length, width, weight, volume, temperature, time, perimeter, and area using standard and nonstandard units of measure.
Science of Flight	KS	MA.6.3.2.K2	selects, explains the selection of, and uses measurement tools, units of measure, and level of precision appropriate for a given situation to find accurate rational number representations for length, weight, volume, temperature, time, perimeter, area, and angle measurements.
Science of Flight	KS	MA.6.4.2.K3	use sampling to collect data and describe the results.
Integrating with Aeronautics	KS	MA.6.1.1.K3	explains the relative magnitude between whole numbers, fractions greater than or equal to zero, and decimals greater than or equal to zero.

Integrating with Aeronautics	KS	MA.6.1.3.K1	estimates quantities with combinations of rational numbers and/or the irrational number pi using various computational methods including mental math, paper and pencil, concrete objects, and/or appropriate technology.
Integrating with Aeronautics	KS	MA.6.1.4.K1	computes with efficiency and accuracy using various computational methods including mental math, paper and pencil, concrete objects, and appropriate technology.
Integrating with Aeronautics	KS	MA.6.4.2.K1.f	organizes, displays, and reads quantitative (numerical) and qualitative (non-numerical) data in a clear, organized, and accurate manner including a title, labels, categories, and rational number intervals using these data displays (single stem-and-leaf plots)
Scientific Method(124-144)	KS	MA.6.2.4.K1.k	knows, explains, and uses mathematical models to represent mathematical concepts, procedures, and relationships. Mathematical models include (Venn diagrams to sort data and to show relationships)
Scientific Method(124-144)	KS	MA.6.4.2.K1.a	organizes, displays, and reads quantitative (numerical) and qualitative (non-numerical) data in a clear, organized, and accurate manner including a title, labels, categories, and rational number intervals using these data displays (graphs using concrete objects)
Scientific Method(124-144)	KS	MA.6.4.2.K1.b	organizes, displays, and reads quantitative (numerical) and qualitative (non-numerical) data in a clear, organized, and accurate manner including a title, labels, categories, and rational number intervals using these data displays (frequency tables and line plots)
Scientific Method(124-144)	KS	MA.6.4.2.K1.c	organizes, displays, and reads quantitative (numerical) and qualitative (non-numerical) data in a clear, organized, and accurate manner including a title, labels, categories, and rational number intervals using these data displays (bar, line, and circle graphs)
Exploring Aeronautics			
2004 Mathematics			
Curriculum Standards			
Kansas Mathematics			
Grade 7			
Activity/Lesson	**State**	**Standards**	
Wings(177-208)	KS	MA.7.3.2.K6.a	uses given measurement formulas to find surface area of cubes,
The Tools of Aeronautics	KS	MA.7.4.1.K2	explains and gives examples of simple or compound events in an experiment or simulation having probability of zero or one.
The Resource Center	KS	MA.7.1.1.K3	explains the relative magnitude between rational numbers and between rational numbers and the irrational number pi.

The Resource Center	KS	MA.7.1.2.K1	knows and explains the relationships between natural (counting) numbers, whole numbers, integers, and rational numbers using mathematical models, e.g., number lines or Venn diagrams.
The Resource Center	KS	MA.7.2.4.K1.a	knows, explains, and uses mathematical models to represent and explain mathematical concepts, procedures, and relationships. Mathematical models include (process models (concrete objects, pictures, diagrams, number lines, hundred charts, measurement tools, multiplication arrays, division sets, or coordinate grids) to model computational procedures, algebraic relationships, and mathematical relationships and to solve equations)
The Resource Center	KS	MA.7.2.4.K1.b	knows, explains, and uses mathematical models to represent and explain mathematical concepts, procedures, and relationships. Mathematical models include (place value models (place value mats, hundred charts, base ten blocks, or unifix cubes) to compare, order, and represent numerical quantities and to model computational procedures)
Science of Flight	KS	MA.7.3.2.K1	determines and uses rational number approximations (estimations) for length, width, weight, volume, temperature, time, perimeter, and area using standard and nonstandard units of measure.
Science of Flight	KS	MA.7.3.2.K2	selects and uses measurement tools, units of measure, and level of precision appropriate for a given situation to find accurate rational number representations for length, weight, volume, temperature, time, perimeter, area, and angle measurements.
Science of Flight	KS	MA.7.4.2.K2	selects and justifies the choice of data collection techniques (observations, surveys, or interviews) and sampling techniques (random sampling, samples of convenience, or purposeful sampling) in a given situation.
Integrating with Aeronautics	KS	MA.7.1.4.K1	computes with efficiency and accuracy using various computational methods including mental math, paper and pencil, concrete objects, and appropriate technology.
Integrating with Aeronautics	KS	MA.7.2.2.K1	knows and explains that a variable can represent a single quantity that changes, e.g., daily temperature.
Integrating with Aeronautics	KS	MA.7.2.2.K4	explains the difference between an equation and an expression.

Integrating with Aeronautics	KS	MA.7.2.2.K7	knows the mathematical relationship between ratios, proportions, and percents and how to solve for a missing term in a proportion with positive rational number solutions and monomials, e.g., 5/6 = 2/x.
Scientific Method(124-144)	KS	MA.7.2.4.K1.j	knows, explains, and uses mathematical models to represent and explain mathematical concepts, procedures, and relationships. Mathematical models include (frequency tables, bar graphs, line graphs, circle graphs, Venn diagrams, charts, tables, single stem-and-leaf plots, scatter plots, and box-and-whisker plots to organize and display data)
Scientific Method(124-144)	KS	MA.7.4.2.K1.d	organizes, displays, and reads quantitative (numerical) and qualitative (non-numerical) data in a clear, organized, and accurate manner including a title, labels, categories, and rational number intervals using these data displays (charts and tables)
Scientific Method(124-144)	KS	MA.7.4.2.K2	selects and justifies the choice of data collection techniques (observations, surveys, or interviews) and sampling techniques (random sampling, samples of convenience, or purposeful sampling) in a given situation.
Scientific Method(124-144)	KS	MA.7.4.2.K3	conducts experiments with sampling and describes the results.
Exploring Aeronautics			
2004 Mathematics			
Curriculum Standards			
Kansas Mathematics			
Grade 8			
Activity/Lesson	**State**	**Standards**	
Wings(177-208)	KS	MA.8.3.2.K5.b	uses given measurement formulas to find surface area of rectangular prisms, triangular prisms, and cylinders
Tools of Aeronautics(257-326)	KS	MA.8.2.4.K1.i	knows, explains, and uses mathematical models to represent and explain mathematical concepts, procedures, and relationships. Mathematical models include (scale drawings to model large and small real-world objects)
The Tools of Aeronautics	KS	MA.8.2.4.K1.i	knows, explains, and uses mathematical models to represent and explain mathematical concepts, procedures, and relationships. Mathematical models include (scale drawings to model large and small real-world objects)
The Resource Center	KS	MA.8.1.1.K2	compares and orders rational numbers, the irrational number pi, and algebraic expressions, e.g., which expression is greater –3n or 3n? It depends on the value of n. If n is positive, 3n is greater. If n is negative, -3n is greater. If n is zero, they are equal.

The Resource Center	KS	MA.8.1.1.K3	explains the relative magnitude between rational numbers, the irrational number pi, and algebraic expressions.
The Resource Center	KS	MA.8.1.2.K1	explains and illustrates the relationship between the subsets of the real number system [natural (counting) numbers, whole numbers, integers, rational numbers, irrational numbers] using mathematical models, e.g., number lines or Venn diagrams.
The Resource Center	KS	MA.8.2.4.K1.b	knows, explains, and uses mathematical models to represent and explain mathematical concepts, procedures, and relationships. Mathematical models include (place value models (place value mats, hundred charts, base ten blocks, or unifix cubes) to compare, order, and represent numerical quantities and to model computational procedures)
Science of Flight	KS	MA.8.3.2.K2	selects and uses measurement tools, units of measure, and level of precision appropriate for a given situation to find accurate real number representations for length, weight, volume, temperature, time, perimeter, area, surface area, and angle measurements.
Science of Flight	KS	MA.8.4.1.K1	knows and explains the difference between independent and dependent events in an experiment, simulation, or situation.
Science of Flight	KS	MA.8.4.1.K2	identifies situations with independent or dependent events in an experiment, simulation, or situation, e.g., there are three marbles in a bag. If you draw one marble and give it to your brother, and another marble and give it to your sister, are these independent events or dependent events?
Science of Flight	KS	MA.8.4.1.K3	finds the probability of a compound event composed of two independent events in an experiment, simulation, or situation, e.g., what is the probability of getting two heads, if you toss a dime and a quarter?
Integrating with Aeronautics	KS	MA.8.1.1.K1	knows, explains, and uses equivalent representations for rational numbers and simple algebraic expressions including integers, fractions, decimals, percents, and ratios; rational number bases with integer exponents; rational numbers written in scientific notation with integer exponents; time; and money.
Integrating with Aeronautics	KS	MA.8.1.4.K1	computes with efficiency and accuracy using various computational methods including mental math, paper and pencil, concrete objects, and appropriate technology.
Integrating with Aeronautics	KS	MA.8.3.1.K6.a	uses the Pythagorean theorem to determine if a triangle is a right triangle,

Integrating with Aeronautics	KS	MA.8.3.1.K6.b	uses the Pythagorean theorem to find a missing side of a right triangle where the lengths of all three sides are whole numbers
Scientific Method(124-144)	KS	MA.8.2.4.K1.k	knows, explains, and uses mathematical models to represent and explain mathematical concepts, procedures, and relationships. Mathematical models include (frequency tables, bar graphs, line graphs, circle graphs, Venn diagrams, charts, tables, single and double stem-and-leaf plots, scatter plots, box-and-whisker plots, and histograms to organize and display data)
Scientific Method(124-144)	KS	MA.8.4.1.K1	knows and explains the difference between independent and dependent events in an experiment, simulation, or situation.
Scientific Method(124-144)	KS	MA.8.4.2.K2	recognizes valid and invalid data collection and sampling techniques.